Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

PCO-018

Hospitalization decision model for COVID-19 patients with comorbidities

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Background: The spread of COVID-19 has put a heavy strain on the healthcare system during all over the world.
Aim: Development of a predictive model for making decisions on hospitalization of patients with COVID-19 with comorbidities.
Methods: Observational retrospective cohort study of 74 314 COVID-19 patients with comorbidities based on monitoring data in the first half of 2020. Binary logistic regression, ROC analysis was used.
Results: $P = 1/(1 + e^{-z})$, $z = -1{,}01 + 4{,}22^* X_{SEV} + 2{,}12^* X_{MILD} + 0{,}40^* X_{ONC} + 0{,}41^* X_{OTH} + 0{,}42^* X_{DYS} + 0{,}40^* X_{HOS} + 0{,}45^* X_{ENP} + 0{,}23^* X_{AGE} + 0{,}41^* X_{CVP} + 0{,}36^* X_{BPP} + 0{,}01^* X_{AGE} + 0{,}36^* X_F - 0{,}51^* X_{RIN} - 0{,}38^* X_{LT} - 0{,}378^* X_{CONT} - 1{,}35^* X_{POLIK}$, P is the probability of hospitalization, X_{AGE} –age (years), X_{CVP} - the cardiovascular pathology, X_{ENP} - endocrine pathology, X_{ONC} - oncology, X_{BPP} –bronchopulmonary pathology X_{OTH} - other comorbidities, X_{SEX} –sex, X_{SEV} – severity, X_{MILD} – mild form, X_F -fiver, X_{LT} - loss of taste, X_{RIN} - rhinitis, X_{DYS} - dyspnea, X_{POLIK} - diagnosis in a polyclinic, X_{HOSP}- diagnosis in the hospital, X_{CONT}– contact with COVID-19. The resulting predictive model turned out to be statistically significant ($p < 0.001$). According to Nigelkirk's coefficient of determination R2, predictors account for 46.6% of the factors influencing the dependent variable. The area under the ROC was 0.863 ± 0.001 (95% CI: 0.860–0.866). Patients with a P value of 0.699 or higher were at high risk of hospitalization. At P < 0.699, low risk. The sensitivity of the model for the selected cut-off point value was 77.9% (10941 correct prognosis out of 38484 hospitalizations), specificity - 77.6% (5101 correct prognosis out of 17708 cases of no hospitalization).
Conclusions: The constructed predictive model can be useful for sorting and identifying groups of patients in need of inpatient treatment in patients with COVID-19 and the presence of comorbidities.

PCO-019

Bacterial and fungal secondary infections in COVID-19 patients in a tertiary healthcare center in Malaysia

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Background: Bacterial and fungal co-pathogens are commonly identified in viral respiratory infections and are important causes of morbidity and mortality. This study is undertaken to determine the prevalence of bacterial and fungal secondary infections in patients with COVID-19.
Methods: Clinical records of 2575 COVID-19 patients admitted to Sungai Buloh Hospital, Selangor between 1 February 2020 until 30 April 2020 with complete outcomes were retrieved. Co-morbidities, clinical features, investigations, treatment and complications were captured using REDCap database. Culture and sensitivity test results were retrieved from WHONET database. Univariate and multivariate regression analyses were used to identify associated determinants.
Results: A total of 105 bacterial and fungal infections were found in 36 patients, which make the prevalence of 0.13%. The age ranged of these patients were between 43–78 years old, predominantly male (27/36, 75%) and Malay ethnicity (31/36, 86%). The most common isolation from bacterial infections were mostly gram negative i.e. Pseudomonas aeruginosa (17/88, 19%), Acinetobacter spp. and Klebsiella spp. both 11/88, 12.5%. The most common fungal infections is Candida albicans (7/17,41%). Almost all (30/36, 83%) patients are classified as category 5 i.e. critically ill with or without mechanically ventilation, on dialysis or on inotropes. Patients with higher C-reactive protein values (i.e. 1–10 and >10 mg/dL) has higher risk of getting secondary infections (p-value 0.002 and <0.001 respectively).
Conclusion: Our study illustrated that bacterial and fungal secondary infections in COVID-19 patients are more frequently found in severely ill patients and associated with a higher mortality rate.

PCO-020

Effect of short-term corticosteroid use on reactogenicity and immunogenicity of the first dose of ChAdOx1 nCoV-19 vaccine

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Background: A prospective cohort study was conducted to investigate immunogenicity of healthcare workers (HCWs) with corticosteroid exposure.
Methods: HCWs who took low-dose corticosteroid agents around the first dose of ChAd (ChAdPd group) were recruited and the reactogenicity and immunogenicity were compared with ChAd- (ChAd group) and BNT162b2-vaccinated (BNT group) HCWs without corticosteroid exposure. The immunogenicity was measured 3 weeks after vaccination using quantitative anti-SARS-CoV-2 spike protein (S) antibody immunoassay and interferon gamma (IFN-γ) release assay.
Results: A total of 67 HCWs (24 ChAd, 29 BNT, and 14 ChAdPd) were included. Total corticosteroid dose of the ChAdPd group was 30 mg prednisolone equivalent in median. ChAdPd group experienced significantly milder reactogenicity (total score in median 7.5, IQR 4.0–18.0) compared to those in the ChAd group (median 23.0, IQR 8.0–43.0, P = 0.012), similar with the BNT group (median 5.0, IQR 3.0–9.0, P = 0.067). The S antibody concentrations of the ChAdPd group (62.4 ± 70.0 U/mL) were numerically higher than the ChAd group (3.45 ± 57.6 U/mL, P = 0.192). The cellular immune response was most robust in the ChAdPd group with significantly higher IFN-γ concentration (5.363 ± 4.276 IU/mL), compared to the ChAd (0.978 ± 1.181 IU/mL, P = 0.002) and BNT (1.656 ± 1.925 IU/mL, P = 0.009) groups.
Conclusions: Short-term corticosteroid reduced reactogenicity of the first dose of ChAd without hindering immunogenicity.